

# *Back Safety and Lifting*



*The Force is Against You*

# The Forces Involved

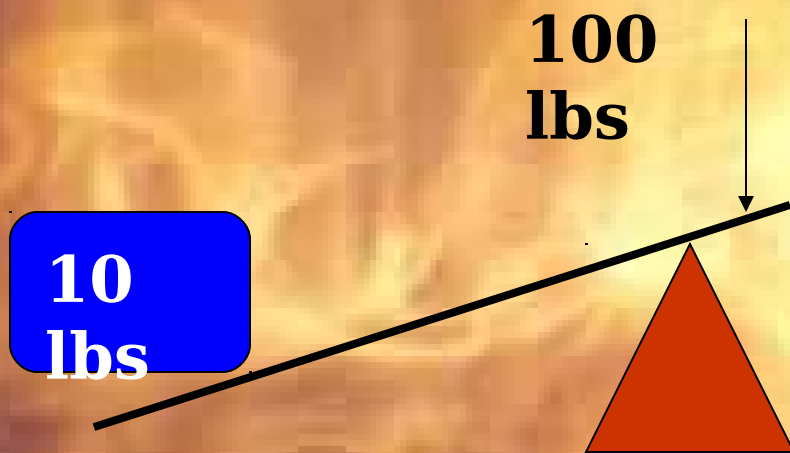
**The amount of force you place on your back in lifting may surprise you! Think of your back as a lever.**



**With the fulcrum in the center, it only takes ten pounds of pressure to lift a**

# The Forces Involved

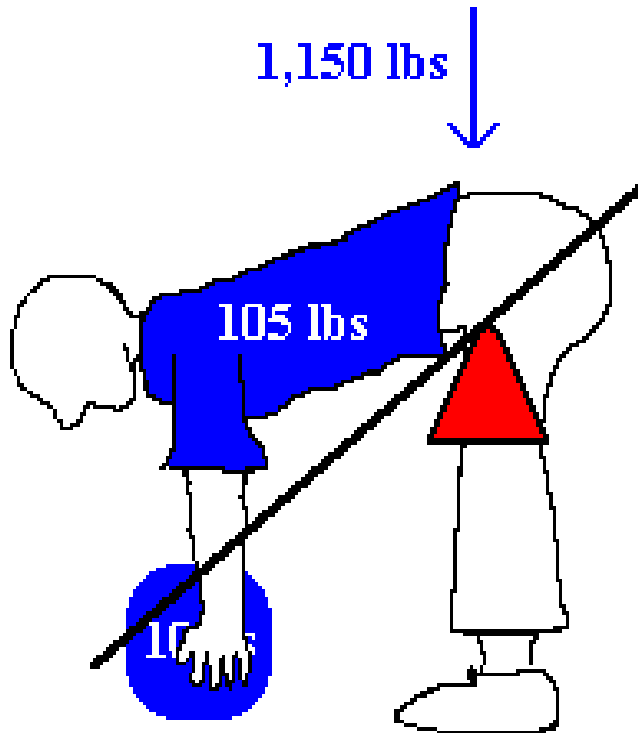
If you shift the fulcrum to one side, it takes much more force to lift the same object. Your waist acts like the fulcrum in a lever system, on a 10:1 ratio.



**Lifting a ten pound object puts 100 pounds of pressure on your lower**

# The Forces Involved

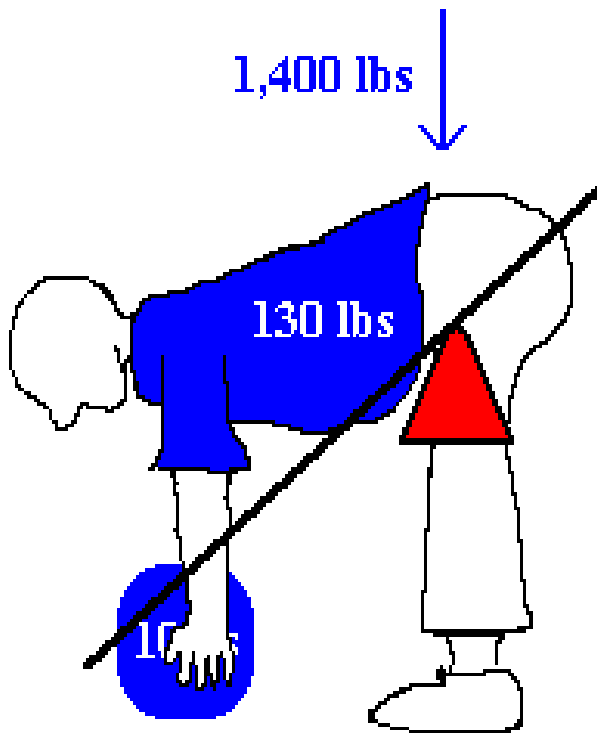
**When you add in the 105 pounds of the average human upper torso,**



**you see that lifting a ten pound object actually puts 1,150 pounds of pressure on the lower back!**

# The Forces Involved

**If you were 25 pounds overweight, it would add an additional 250 pounds of pressure on your back every time you bend over.**



# *Causes of Back Injuries*

# **Common Causes of Back Injuries**

- **Back injuries are second in number after injuries to the fingers and hands.**
- **Most lower back injuries come from:**



- Lifting**
- Lowering**
- Pushing**
- Pulling**
- Carrying**

# **Common Causes of Back Injuries**

- **Three main factors in manual lifting:**
  - **Load Location - Where is the load?**
  - **Task Repetition - Frequency of Exertion**
  - **Load Weight -How heavy?**

# Common Causes of Back Injuries

Anytime you find yourself doing one of these things, you should think:



**DANGER!** My back is at risk!

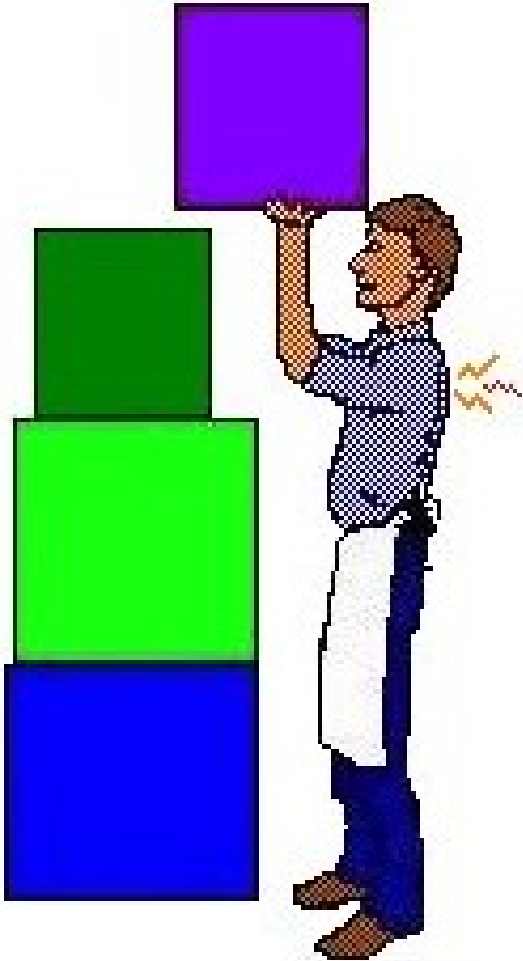
Try to avoid heavy lifting . . . Especially repetitive lifting over a long period of time.

# Common Causes of Back Injuries

**Twisting at the waist while lifting or holding a heavy load . . . This frequently happens when using a shovel.**



# Common Causes of Back Injuries



**Reaching and lifting . .  
. over your head,  
across a table, or out  
the back of a truck . . .**

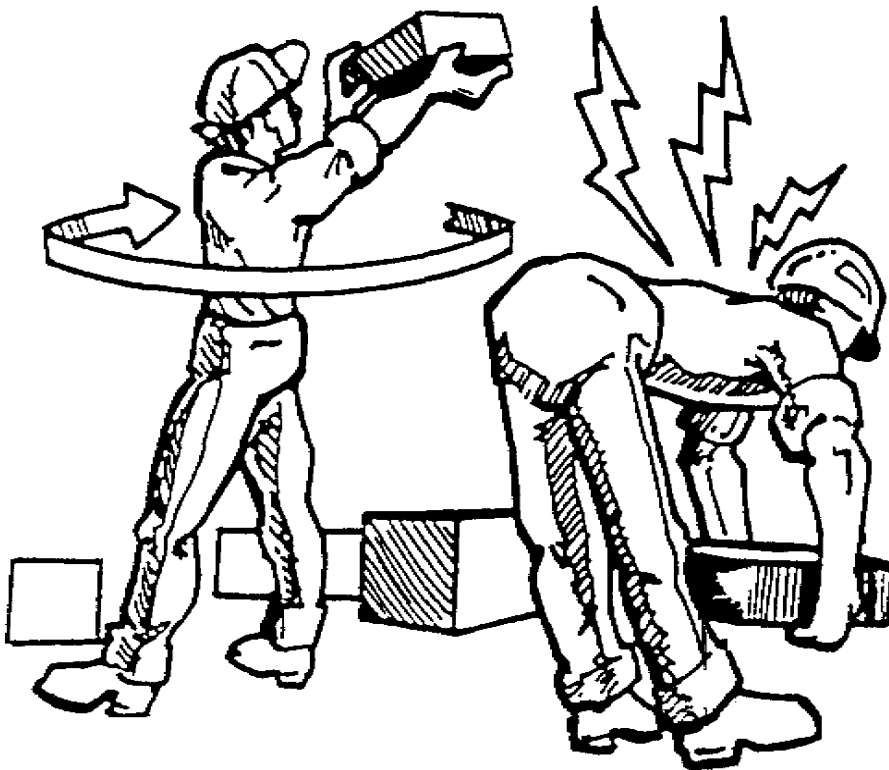
# Common Causes of Back Injuries



**Lifting or carrying objects with awkward or odd shapes . . .**

# Common Causes of Back Injuries

**Working in awkward, uncomfortable positions . . .**



# Common Causes of Back Injuries



**Sitting or standing too long in one position . . . Sitting can be very hard on the lower back . . .**

# **Common Causes of Back Injuries**



**It is also possible  
to injure your  
back slipping on  
a wet floor or  
ice . . .**

*Prevention*

# Prevent Back Injuries



- **Avoid lifting and bending whenever you can.**
- **Place objects up off the floor.**
- **Raise/lower shelves.**
- **Use carts and dollies.**

# Prevent Back Injuries

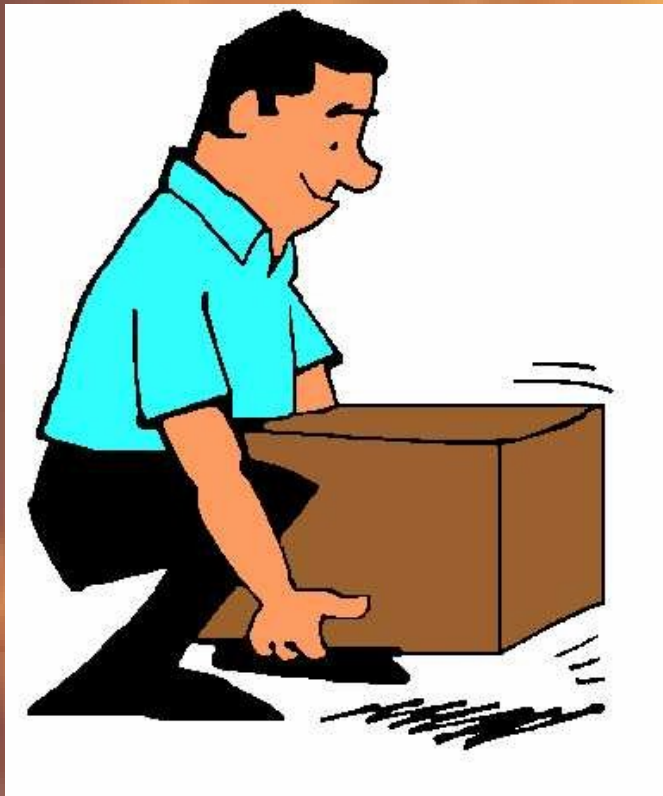
- Use cranes, hoists, lift tables, and other lift-assist devices whenever you can.
- Test the weight of an object before lifting by picking up a corner.



- Get help if it's too heavy for you to lift it alone.

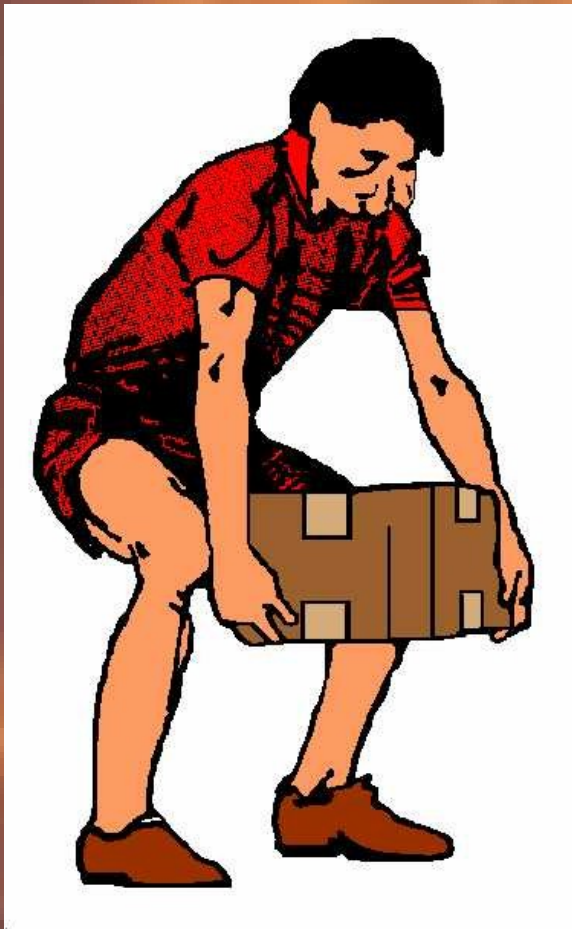
# **Prevent Back Injuries**

**Use proper lift procedures**



- **Follow these steps when lifting . . .**
  - **Take a balanced stance, feet shoulder-width apart.**
  - **Squat down to lift, get as close as you**

# **Prevent Back Injuries**



- **Get a secure grip, hug the load.**
- **Lift gradually using your legs, keep load close to you, keep back and neck straight.**

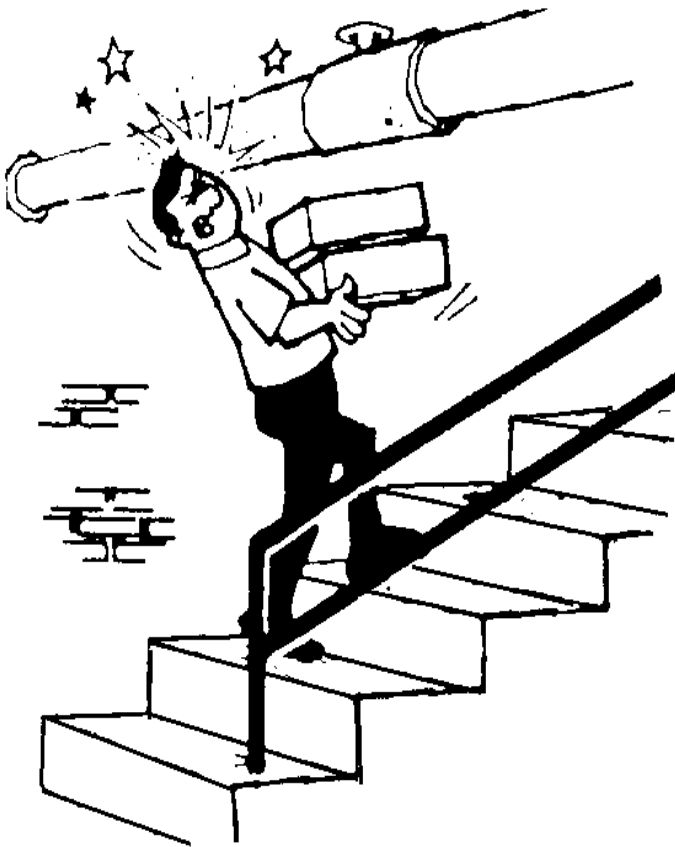
# **Prevent Back Injuries**

- **Do not turn at the waist to change direction or to put an object down.**
- **Change directions by pointing your feet and turning your whole body. Avoid twisting at your waist.**
- **To put load down, use these guidelines in reverse.**

# **Points to Remember**

- **Use gloves to protect the hands and safety shoes to protect the feet.**
- **Inspect objects for slivers, sharp edges, rough surfaces, or slippery surfaces before attempting to lift.**

# Points to Remember



- **Keep fingers away from pinch and shear points.**
- **Do not carry a load that obstructs the view of the direction of travel.**
- **Make sure the path is clear. Look for obstructions and spills.**

# Points to Remember

- **Do not “jerk-lift” loads, which multiplies stress to the lower back.**
- **Consider the need to rest.**



# **Points to Remember**

- **Use Team-Lifting Principles when the load or material is too much for one person to handle safely and mechanical equipment is not practical for this purpose.**
  - **Individuals approximately the same size**
  - **Lift and move together**
  - **Observer to give orders to ensuring necessary coordination**

*Help Your Back*

# **Things You Can Do**

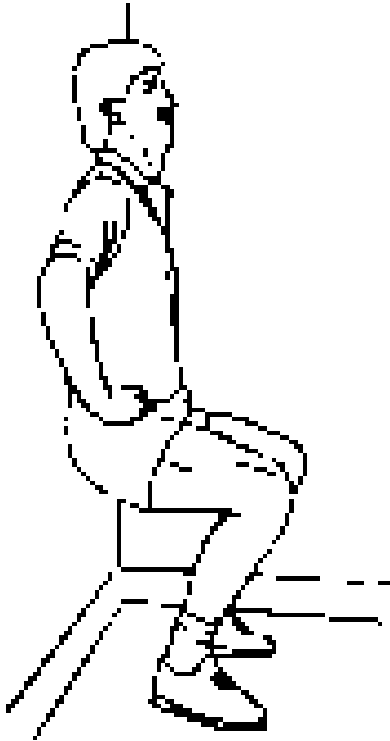
- **Minimize problems with your back by exercises that tone the muscles in your back, hips and thighs.**
- **Before beginning any exercise program, you should check with your doctor.**



# **Exercise!**

- **Exercise regularly, every other day.**
- **Warm up slowly . . . A brisk walk is a good way to warm up.**
- **Inhale deeply before each repetition of an exercise and exhale when performing each repetition.**

# **To Help Your Back**



**Wall slides to strengthen your muscles . . .**

**Stand with your back against a wall, feet shoulder-width apart.**

**Slide down into a crouch with knees bent to 90 degrees.**

**Count to 5 and slide back up the wall. Repeat 5 times.**

# **Exercises To Help Your Back**

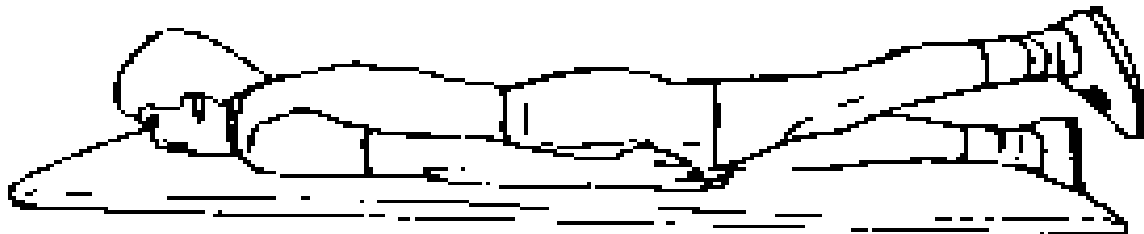
**Leg raises to strengthen back and hip muscles . . .**

**Lie on your stomach.**

**Tighten muscles in one leg and raise leg from floor.**

**Hold for count of 10, and return leg to floor.**

**Do the same with your other leg.**



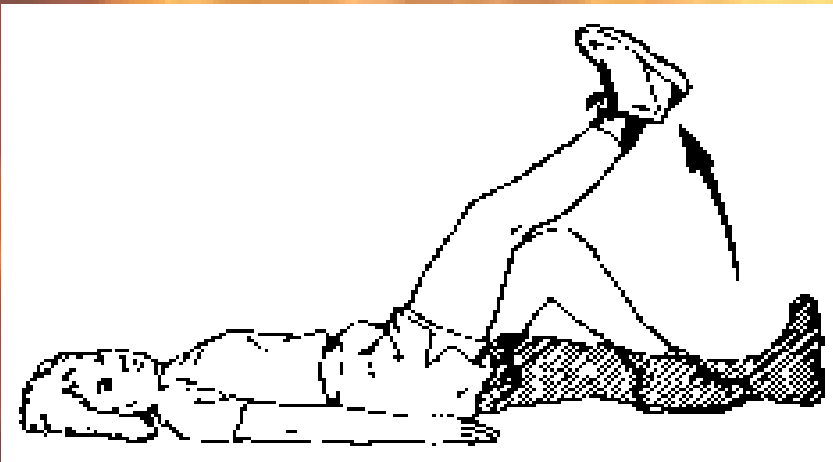
**Repeat five  
times with  
each leg.**

# **Exercises To Help Your Back**

**Leg raises to strengthen back and hip muscles.**

**Lie on back, arms at your sides. Lift one leg off floor and hold for count of ten.**

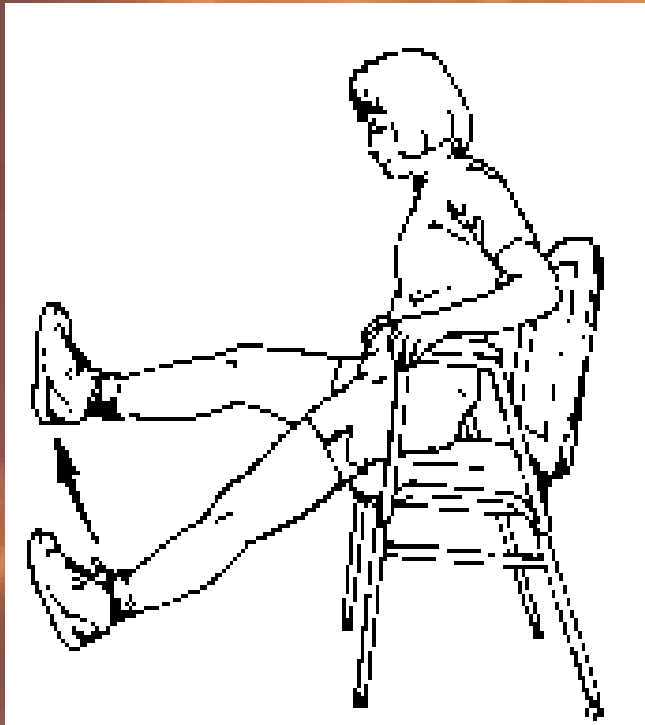
**Do the same with the other leg. Repeat 5 times with each leg. If this is too difficult...**



**Keep one knee bent and the foot flat on the floor while raising the other leg.**

# **Exercises To Help Your Back**

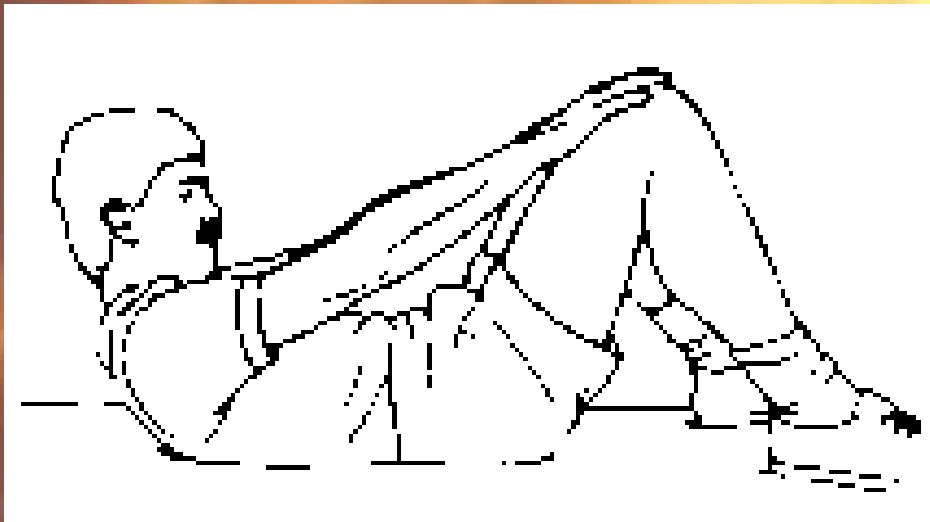
**Leg raises while seated . . .  
Sit upright, legs straight  
and extended at an angle to  
floor. Lift one leg waist  
high. Slowly return to floor.  
Do the same with the other  
leg.**



**Repeat 5 times with each  
leg.**

# **Exercises To Help Your Back**

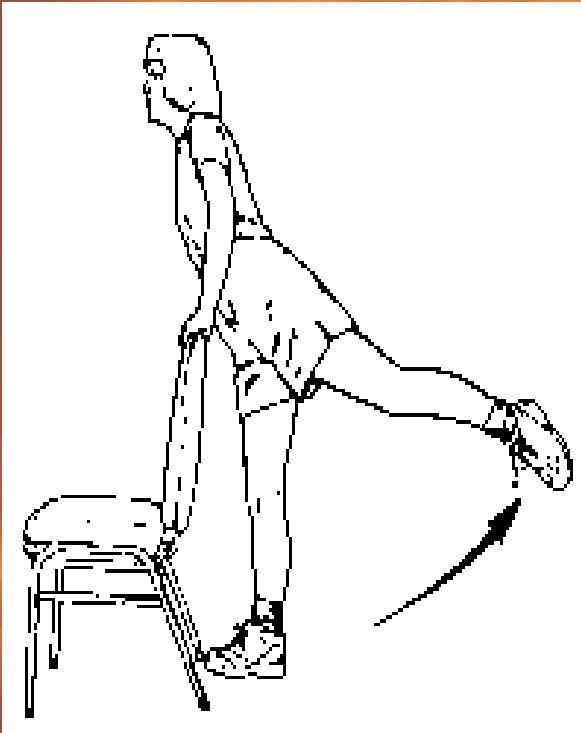
**Partial sit-up to strengthen stomach muscles . . . Lie on back, knees bent and feet flat on floor.**



**Slowly raise head and shoulders off floor and reach both hands toward your knees. Count to**

# **Exercises To Help Your Back**

**Back leg swing to strengthen  
hip and back muscles . . .**



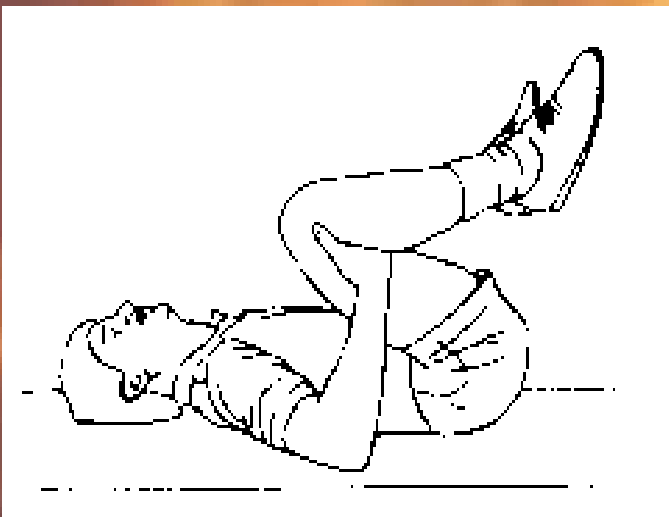
**Stand behind chair,  
hands on chair. Lift  
one leg back and up,  
keeping the knee  
straight. Return  
slowly. Raise other leg  
and return.**

# **Decrease the Strain on Your Back**

**Lie on back, knees bent, feet flat on floor.**

**Raise knees toward chest.**

**Place hands under knees & pull knees to chest.**



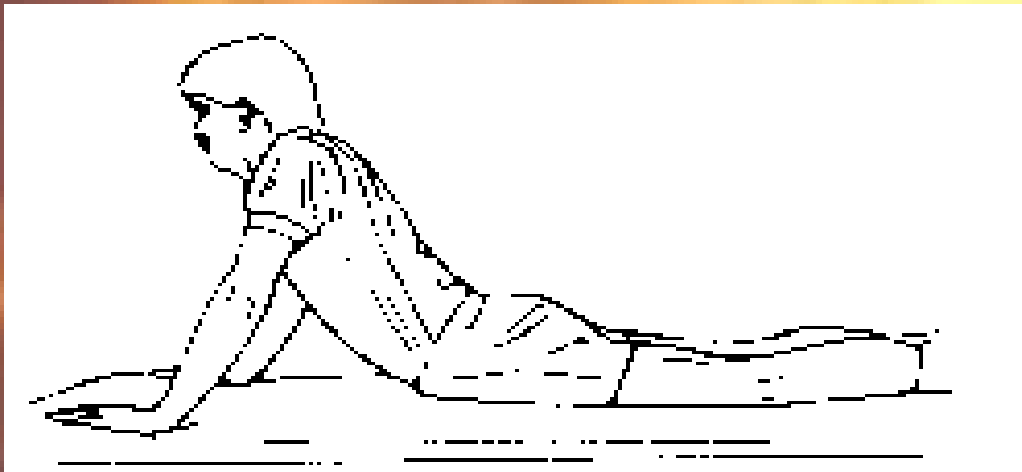
**Do not raise head.**

**Do not straighten legs  
as you lower them.**

**Start with 5 repetitions,  
several time a day.**

# **Decrease the Strain on Your Back**

**Lie on stomach, hands under shoulders, elbows bent and push up. Raise top half of body as high as possible. Keep hips and legs on floor. Hold for one or two seconds.**



**Repeat 10  
times, several  
times a day.**

# **Decrease the Strain on Your Back**

**Stand with feet apart.**

**Place hands in small of  
back. Keep knees  
straight.**

**Bend backwards at waist  
as far as possible and hold  
for one or two seconds.**

**Repeat as needed.**



# **Take care of your back...**

- **And it will take care of you**
  - **Exercise daily**
  - **Avoid Heavy Lifting**
  - **Get Help with heavy or bulky objects**
  - **If you must bend over, do it properly**
  - **Avoid twisting at the waist when carrying objects**
  - **Always watch where you're going**

# **Rules of Lifting - Overview:**

- **DO engineer manual lifting and lowering out of the workplace. If this is not an option, perform it between knuckle and shoulder height.**
- **DO be in good physical shape. If you are not used to lifting and vigorous exercise, don't attempt to do difficult lifting or lowering tasks.**

# **Rules of Lifting - Overview:**

- **DO think before acting. Place material conveniently within reach. Have handling aids available. Make sure sufficient space is cleared.**
- **Do get a good grip on the load. Test the weight before trying to move it. If it is too bulky or heavy, get a mechanical lifting aid or somebody else to help, or both.**

# **Rules of Lifting - Overview:**

- **DO get the load close to the body. Place the feet close to the load. Stand in a stable position with the feet pointing in the direction of movement. Lift mostly by straightening the legs.**
- **DO NOT twist the back or bend sideways!**

# **Rules of Lifting - Overview:**

- **DO NOT lift or lower awkwardly.**
- **DO NOT hesitate to get mechanical help or help from another person.**
- **DO NOT lift with arms extended.**
- **DO NOT continue lifting when the load is too heavy!**